

REMARKS:

The Office Action dated March 23, 2007 has been carefully considered. The following remarks are intended to be fully responsive to the Office Action

Claims 4-6 are pending in the application. Claim 4 has been amended.

Overview of the Office Action

Claims 4-6 have been rejected under 35 U.S.C § 103(a) as being unpatentable over JP H10-22639(A) by Teichi et al. For the following reasons, Applicants respectfully traverse that rejection.

Applicants submit that the present invention is clearly patentable over Teichi et al when the structure, purpose and effect are directly compared against one another.

Accordingly, the following detailed remarks are provided:

Structure of Independent Claim 4

The manufacturing method in claim 4 as currently amended comprises the following structure. Please note that the annotation at the beginning of each element is for comparison purposes against Teichi et al.

Claim 4 (Currently amended): A manufacturing method of a multilayer printed wiring board in which at the time of manufacturing each layer of a build-up board composed of a multilayer printed wiring board with an Interstitial Via Hole (IVH) structure ~~includes~~ comprising the steps of:

A1) bonding a metallic foil having electrical conductivity on one side of a sheet-like support substrate wherein said support substrate supports said metallic foil;

B1) after bonding forming metallic conductor pieces for said via holes by patterning said metallic foil;

~~forming patterns in said metallic foil;~~
C1) transferring said metallic conductor pieces to a sheet-like insulating resin by laminating said metallic conductor pieces with said sheet-like insulating resin; and
D1) exfoliating said support substrate.

Technique Disclosed in Teiichi et al.

On the other hand, Teiichi et al. discloses a manufacturing method of a multilayer printed wiring board in which at the time of manufacturing each layer of a build-up board composed of a multilayer printed wiring board with an Interstitial Via Hole (IVH) structure, the structure is prepared by:

A2) bonding a metallic foil having electrical conductivity (the metallic foil affixed with an adhesive agent 3) on one side of a sheet-like support substrate (the plastic flow sheet 6, the crosslink-able resin layer 62) wherein said support substrate supports said metallic foil (FIGS. 1(c) and 1(d));

D2) exfoliating said support substrate (FIG. 1(e));

B2) forming metallic conductor pieces for said via holes by metallizing the inner wall of said metallic foil with electroless plating and electrolysis plating or with conductive paste filling (last portion of paragraph [0020]).

Comparison of Claim 4 Against Teiichi et al.

By comparing the present invention and technique against Teiichi et al., the following three distinctions are apparent:

- i) The sequence of each step differs from one another.
- ii) A corresponding C1) step is not mentioned in Teiichi et al.
- iii) Concerning the B1) and B2) steps, they are different in how the metallic conductor pieces are formed.

Distinction i)

In regard to the above-mentioned i) in claim 4 of the present application, the A1) step is followed by the B1) step. In other words, formation of metallic conductor pieces is carried out after bonding a metallic foil on a sheet-like support substrate.

On the other hand, in the technique of Teiichi et al., step A2) is followed by step D2) not by step B2). This can be distinctly seen in FIGS. 1(c) through 1(e) of Teiichi et al. Thus, the sequence of each step differs from one another.

Distinction ii)

Concerning the aforementioned ii), a corresponding step to C1) in the present application is not provided in Teiichi et al. That difference clearly reflects that the present invention involves another technical concept as compared to the conventional technique.

The detailed description of the preferred embodiments of the present application states that

“Conventionally, the wording “via hole” is generally understood as an electrical connection path constituted of a hole formed in each of the layers of a build-up board which is “filled with” conductive paste or electrolytic plating and “hardened” by means of a heat treatment or the like. As will be clarified by the following description, the via holes 26 according to the embodiment of the present invention is different from the via hole based on the above described conventional understanding in a point that the processes of “filling with” and the “hardening” are not required.”

(See specification page 11, lines 5-14)

That is poses a question of how are the via holes made in the present invention. The answer is that the via holes are made before step C1).

As stated in the present invention claim 4, metallic conductor pieces are formed from the metallic foil in steps A1) and B1).

The metallic conductor pieces serve as the via holes. In other words, the metallic conductor pieces themselves are the via holes.

Furthermore, in claim 4 the metallic conductor pieces are transferred to the sheet-like insulating resin, and then the support substrate which supports the metallic foil (the metallic conductor pieces) is exfoliated.

Distinction iii)

Accordingly, the above statements are reflected in the distinction iii). That is, the present invention does not perform filling or hardening as generally understood by the Examiner, but instead carries out steps A1) through D1). Conversely, Teiichi et al. carries out electroless plating and electrolysis plating or conductive paste filling (B2).

Conclusion

Based on the above-mentioned distinctions, Applicants respectfully submit that claim 4, as amended, distinctly differs from Teiichi et al. In addition, it is submitted that there is no teaching, suggestion or motivation in Teiichi et al. for modifying the technique disclosed therein to that which is disclosed and claimed in the present application. Therefore, Applicants respectfully disagree that claim 4 is unpatentable over Teiichi et al. For the same reasons, dependent claims 5 and 6 are also patentable over Teiichi et al.

In view of the foregoing, it is respectfully submitted that the present invention is now in proper condition for allowance. Reconsideration and withdrawal of the rejection of claims 4-6, and prompt and favorable action passing this application to issue are respectfully solicited.